

APPENDIX 4 Guidelines for Protecting Soil and Water Quality

ACTIVITY	POTENTIAL IMPACTS	GUIDELINES
Fireline construction	Soil exposure leading to erosion, soil loss, invasive species, reduced site productivity, concentrated overland flow, sediment delivery to streams, water quality and aquatic habitat problems.	<u>MA's 1,2:</u> Avoid fireline construction. <u>other MA's:</u> Avoid fireline construction on highly erodible sites (fine-textured soils, especially on steep slopes, and unchanneled drainageways such as swales, draws, ravines).
Fireline rehabilitation	Incorrect waterbarring which can cause more problems than if the line was unbarred. More soil disturbance (compaction, displacement, invasive weed introduction)	<u>All MA's:</u> Construct waterbars on all firelines except for those with rocky, well-drained soils. Cover exposed soils on dozer lines with appropriate seed mix, and then with available slash.
Fueling sites	Contamination of surface water, ground water, or soils.	<u>All MA's:</u> Spill kits and barriers at all fueling sites.
Retardant drops	Contamination of surface water.	<u>MA1,2:</u> Avoid dropping retardant over open water (no tree canopy).
Camps, staging sites, helibases, etc.	Few concerns for already established facilities such as campsites, landings, etc. Soil and veg damage, and erosion can result from construction of new sites.	<u>All MA's:</u> Utilize existing sites where soil resources are already committed to developed use rather than site productivity.
Watering sites	Damming culverts can saturate road embankments and cause mass failure, or force overbank diversion which can cause erosion. Excavating pools can cause stream destabilization and sediment delivery. Constructing streamside engine access can damage riparian vegetation and soils.	<u>All MA's:</u> Do not dam culvert inlets for water supplies - outlets may often have pools, or at least can be dammed with far less potential for impact. Do not excavate streams for watering pools. Use porta-tanks, pumps, and hose to bring water to an engine access spot rather than constructing access to streamside.
Runoff and erosion control rehabilitation.	Misapplied or unforeseen impacts from rehab practices due to lack of IDT approach and awareness of appropriate rehab practices .	Utilize current BAER practices and IDT approach for rehab.
Vegetation rehabilitation	Invasive spp. introduction.	<u>All MA's:</u> Use certified weed-free seed. Do not use perennial spp. seed in areas where native seed sources remain (lightly burned areas with some living vegetation remaining). In such cases, use short-lived annual seed spp. and cover exposed soil with slash or mulch.
Prescribed burning	Soil damage (duff consumption, mineral soil exposure, water repellency, excessive runoff and erosion). Since these are planned actions, guidelines will be developed on site specific, case-by-case basis.	<ul style="list-style-type: none"> • Burn during a drying period such that target fuels reach Rx first while soil and duff drying lags behind and moisture is high enough to prevent consumption. Duff moisture of 120% for heavier fuel loads, and 100% for lighter fuel loads. • Use ignition patterns which minimize slow-moving, long-duration flaming fronts. Mass ignition firing techniques will ignite fuels over a large area to reduce duration of flaming fronts and the smoldering phase of fuel consumption. This will help keep soil temperatures from getting too high and causing soil damage. • Avoid jackpot burning of large piles with heavy fuel concentrations. Break up fuel concentrations to improve horizontal continuity, even drying, and reduced intensity and duration per unit area.